REMARKS/ARGUMENTS

Claims 1-20 are pending in this application. The Office Action, dated September 20, 2004: allowed claims 1-10, and rejected claims 11 - 20 under 35 USC § 102(b) as being anticipated by Kawakami (US Patent No. 4,618,812). Applicant thanks the Examiner for the review and allowance of claims 1-10. Claims 11 and 17 are amended to correct for minor errors, and not to overcome any basis of rejection. The rejections of claims 11-20 are traversed for the reasons that follow below. No new matter has been added.

Rejection of Claims 11 - 20 under 35 USC § 102(b)

Claims 11 - 20 are rejected under 35 USC § 102(b) as being C § 102(b) as being anticipated by Kawakami (US Patent No. 4,618,812). The office action states:

> "Fig. 1 discloses an inductor L1, a diode D2, a sense means R8/R9, an oscillator means 16, a switch means Q2 and a disable means A3 arranged and operating as recited in claims 11 - 20."

The office action is silent as to any other basis of rejection. Applicant's would like to point out that claims 11 - 17 are apparatus claims, while claims 18 - 20 are method claims. Each of these claim sets is entitled to a complete analysis on the merits. Applicant respectfully requests that the claims be fully evaluated, and that an action on the merits be provided with sufficient guidance so that the Applicant can fully appreciate any basis of rejection. As a courtesy to the Examiner, the Applicant has made every effort to evaluate the cited references and provide guidance to appreciate the distinctions between those references and the claimed invention.

Claim 11 recites at least the following limitations that are not taught by the cited references, and in particular not taught by the Kawakami reference:

> "an inductor ... between a first node and a second node ...
> a diode ... between the second node and the load circuit ...
> a sense means ... to monitor a sense voltage **from the *second node*** ...
> an oscillator means ... to selectively provide a gate signal when enabled, wherein a ***pulse width*** associated with the gate signal is ***responsive*** **to the *input voltage*** (V_{IN}) ...
> ***a disable means*** ... to **disable the oscillator means** in response to the sense voltage ... such that the switching regulator is ***operated in a discontinuous current mode.***

The office action recites that resistor R8/R9 is a sense means that satisfies the limitations of Applicant's claim 11. However, Applicant's claim 11 states that the "sense means" monitors "a sense voltage **from the *second node***", which is not found in Fig. 1 of Kawakami. Instead, Kawakami teaches to sense the output voltage (VOUT), which is separated from node 22 by diode D2.

The office action also recites that block 16 from Fig. 1 is an oscillator means that satisfies the limitations of Applicant's claim 11. However, Applicant's claim 11 states that the "oscillator means ... provide[s] a gate signal ... wherein ***a pulse width*** associated with the gate signal **is responsive to the input voltage**", which in not found in Fig. 1 of Kawakami. Instead, Kawakami teaches that either a positive or negative voltage is applied to control input terminal 26 to vary the pulse width, where the voltage applied to the control input terminal 26 is derived from the output voltage and a reference voltage (see Kawakami at col 2, lines 49 - 59). Since the oscillator means in Applicant's claim 11 is "responsive to the input voltage", this limitations is simply not taught by the cited references.

The office action further recites that amplifier A3 is a disable means that satisfies the limitations of Applicant's claim 11. However, Applicant's claim 11 states that "***a disable means*** ... to **disable the oscillator means** in response to the sense voltage ... such that the switching regulator is ***operated in a discontinuous current mode.***" The Kawakami reference does not teach to disable an oscillator means as is found in Applicant's claim 11. Nor does the Kawakami reference teach to operate [the switching regulator] in discontinuous current mode. Instead, Kawakami teaches that the "PWM circuit 16 produces a train of regular pulses having a preset repetition frequency", and that the pulse widths can be varied by the "voltage applied to the control input terminal 26" (see Col 2, lines 49 - 59, and Col 3, lines 11 - 15). A **regular** pulse train with varying widths cannot have a disabled oscillator, nor can it operate in discontinous current mode as taught in Applicant's claim 11.

Applicant's claim 11 is believed to be allowable and non-obvious for at least those reasons stated above. Claim 12 - 16, which depend upon and further limit claim 11, should be allowable for that reason as well as any additional limitations they recite. Claim 11 - 16 are in proper form for allowance and a notice to that effect is respectfully requested.

Claim 17 recites at least the following limitations that are not taught by the cited references, and in particular not taught by the Kawakami reference:

"A method of generating an output voltage... comprising:
coupling an inductor to a circuit ground such that the inductor is charged ***during a first cycle,*** wherein the inductor has a value corresponding to L;
discharging the inductor after the first cycle by coupling energy from the inductor to the load circuit through a diode ***during a second cycle,*** wherein the second cycle is ***different from the first cycle;***
sensing when the inductor is discharged;

restarting the first cycle when the inductor is determined to be discharged such that the switching regulator is operated in a discontinuous current mode;

adjusting the period associated with ***the first cycle in response to the input voltage (V_{IN})*** such that a load current that is provided to the load circuit is a linear function of the input voltage (V_{IN})."

As described in Applicant's claim 17, the method describes: discharging the inductor, and sensing when the inductor is discharged, followed by restarting the first cycle when the inductor is determined to be discharged. The cited references simply do not teach this ***discontinuous*** mode of operation. Moreover, the cited references do not teach to adjust the period associated with the first cycle, the charging of the inductor, ***in response to the input voltage***.

For at least those reasons described above with respect to claim 11, claim 17 is believed to be allowable and non-obvious. Claim 18 - 20, which depend upon and further limit claim 17, should be allowable for that reason as well as any additional limitations they recite. Claim 17 - 20 are in proper form for allowance and a notice to that effect is earnestly solicited.

In view of the foregoing amendments and remarks, all pending claims are believed to be allowable and the application is in condition for allowance. Therefore, a Notice of Allowance is respectfully requested. Should the Examiner have any further issues regarding this application, the Examiner is requested to contact the undersigned attorney for the applicant at the telephone number provided below.

Respectfully submitted,

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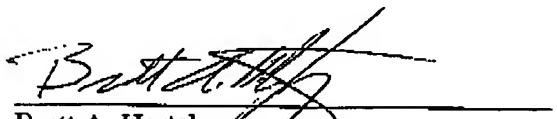

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